



BILLING CODE 3510-DS-P

DEPARTMENT OF COMMERCE
International Trade Administration
Application(s) for Duty-Free Entry of Scientific Instruments

Pursuant to Section 6(c) of the Educational, Scientific and Cultural Materials Importation Act of 1966 (Pub. L. 89-651, as amended by Pub. L. 106-36; 80 Stat. 897; 15 CFR part 301), we invite comments on the question of whether instruments of equivalent scientific value, for the purposes for which the instruments shown below are intended to be used, are being manufactured in the United States.

Comments must comply with 15 CFR 301.5(a)(3) and (4) of the regulations and be postmarked on or before (Insert date 20 days after publication in the FEDERAL REGISTER). Address written comments to Statutory Import Programs Staff, Room 3720, U.S. Department of Commerce, Washington, D.C. 20230. Applications may be examined between 8:30 A.M. and 5:00 P.M. at the U.S. Department of Commerce in Room 3720.

Docket Number: 15-015. Applicant: University of Pittsburgh, 100 Technology Drive, Suite 350, Pittsburgh, PA 15219. Instrument: Oxygraph-2K. Manufacturer: Oroboros Instruments Corp, Austria. Intended Use: The instrument will be used to evaluate the various putative antidotes to reverse the effects of cyanide or sulfide toxicants on mitochondria in cultured cells. The instrument will be used to measure changes in oxygen consumption rates correlated with either changes in mitochondrial inner-membrane depolarization, changes in calcium fluxes between endoplasmic reticulum and mitochondria, or prevailing levels of hydrogen peroxide and nitric oxide. The instrument is unique in its ability to allow routine measurements to be made with specifications summarized under the term "high-resolution respirometry", meaning the limit of detection of O_2 flux is as low as $0.5 \text{ pmols}^{-1}\text{cm}^{-3}$, signal noise at zero oxygen concentration is $< 0.05 \text{ } \mu\text{M } O_2$, oxygen back-diffusion at zero oxygen at $< 3 \text{ pmols}^{-1}\text{cm}^{-3}$, and oxygen consumption at air saturation and standard basic barometric pressure (100kPa) at $2.7 \pm 0.9 \text{ SD}$ in at 37 degrees Celsius. The dual measurement capability of the instrument is also critical for the experiments. Justification for Duty-Free Entry: There are no instruments of the same general category manufactured in the United States. Application accepted by

Commissioner of Customs: June 1, 2015.

Docket Number: 15-019. Applicant: Oregon State University, 2900 SW Campus Way, LPSC 145, Corvallis, OR 97331-2140. Instrument: Electron Microscope. Manufacturer: FEI Company, Czech Republic. Intended Use: The instrument will be used to identify genus and species of small biological samples such as pollen, diatoms, and dead bacteria, as well as study novel life science and materials science samples. Justification for Duty-Free Entry: There are no instruments of the same general category manufactured in the United States. Application accepted by Commissioner of Customs: April 23, 2015.

Docket Number: 15-021. Applicant: The City University of New York, 205 East 42nd Street, Room 11-64, New York, NY 10017. Instrument: Electron Microscope. Manufacturer: FEI Company, Japan. Intended Use: The instrument will be used to visualize macromolecular complexes composed of protein, nucleic acids and lipids, organelles and cells in vitrified ice, to understand the structural mechanism by which macromolecular complexes, organelles and cells carry out their actions. Justification for Duty-Free Entry: There are no instruments of the same general category manufactured in the United States. Application accepted by Commissioner of Customs: May 8, 2015.

Docket Number: 15-022. Applicant: Purdue University, 701 West Stadium Ave., ARMS, West Lafayette, IN 47907. Instrument: Conical twin screw minicompounder. Manufacturer: Xplore, the Netherlands. Intended Use: The instrument will be used to find improved formulations of polymer resins with improved mechanical, thermal, electrical and other properties using compounding, recirculation, master-batch mixing and additive mixing. The instrument satisfies several requirements for the experiments, including surface hardness of components at 2000 Vickers hardness, operational temperature to 450 degrees Celsius, conical twin screw design, capability of both co- and counter-rotating, expandable to specialized screws for nanomaterial compounding, expandable to film line, fiber line, and injection molder, corrosive material tolerance (pH 0-14) and the ability to track viscosity. Justification for Duty-Free Entry: There are no instruments of the same general category manufactured in the United States. Application accepted by Commissioner of Customs: June 12, 2015.

Docket Number: 15-023. Applicant: Idaho National Laboratory, 2525 Fremont Avenue, Idaho Falls, ID 83415. Instrument: Focused Ion Beam (FIB) Microscope. Manufacturer: FEI, Czech Republic. Intended Use: The instrument will be used to analyze materials including nuclear fuels used in research and power reactors as well as irradiated structural materials associated with the operation of nuclear reactors, to obtain insight on the microstructure stability of

nuclear materials, including the effects of radiation on the microstructure of nuclear fuels and structural materials and the effects of porosity due to fission gas and/or helium production. The instrument is used to create a pristine sample surface, void of damage created by standard sample preparation techniques for microstructure characterization. Additionally, it can be used to create samples from irradiated fuel that have radiation levels that are less than the detection limits of standard radiation counters, which lowers the dose received to personnel when handling FIB'ed samples. Justification for Duty-Free Entry: There are no instruments of the same general category manufactured in the United States. Application accepted by Commissioner of Customs: June 15, 2015.

Docket Number: 15-024. Applicant: Institute for the Preservation of Cultural Heritage, Yale University, 300 Heffernan Drive, Bldg. 900, West Haven, CT 06516. Instrument: Willard Multi-Function Table. Manufacturer: Willard, United Kingdom. Intended Use: The instrument will be used to carry out conservation processes, for conservation fellows to develop and research methodologies of treatment and to instruct student conservators in structural conservation techniques. The surface of the table can be heated very precisely and evenly, air can be circulated under the surface to create downward pressure, air can also be passed through ducts which can be heated and can produce precisely controlled humidity, a vacuum system can be used to hold objects in place and can be operated independently of the humidification system, which is a unique feature of the instrument. Research into new techniques and the testing of adhesives and consolidants will be undertaken. Justification for Duty-Free Entry: There are no instruments of the same general category manufactured in the United States. Application accepted by Commissioner of Customs: May 21, 2015.

Docket Number: 15-025. Applicant: The Rockefeller University, 1230 York Avenue, New York, NY 10065. Instrument: Electron Microscope. Manufacturer: FEI Company, the Netherlands. Intended Use: The instrument will be used to determine three-dimensional structures of single proteins or multi-protein complexes, complexes between proteins and nucleic acids, which can be either RNA or DNA, as well as lipids, detergents or inhibitors of certain proteins. Justification for Duty-Free Entry: There are no instruments of the same general category manufactured in the United States. Application accepted by Commissioner of Customs: May 27, 2015.

Docket Number: 15-026. Applicant: University of Delaware, 201 DuPont Hall, University of Delaware, Newark, DE 19716. Instrument: Electron Microscope. Manufacturer: FEI Company, Brno, Czech Republic. Intended Use: The instrument will be used to obtain structural and elemental information of materials such as polymers, colloids and biomaterials, including

morphology, size distribution, and crystal structure and their correlations with material processes and properties. Justification for Duty-Free Entry: There are no instruments of the same general category manufactured in the United States. Application accepted by Commissioner of Customs: June 16, 2015.

Docket Number: 15-027. Applicant: University of Nebraska, Lincoln, 1700 Y St., Lincoln, NE 68588-0645. Instrument: Photonic Professional GT-upgrade. Manufacturer: Nanoscribe GmbH, Germany. Intended Use: The instrument will be used to research micro/nano 3D printing, micro/nano technology, materials, and novel laser-material interactions, using 3D laser lithography techniques integrating both two-photon polymerization (TPP) and multi-photon ablation (MPA). The instrument integrates both a precise piezo stage and a galvano scanner for a large-area and fast micro/nano-structuring. Multi-photon polymerization and multi-photon ablation will be investigated and applied for printing 3D micro/nano-structures of arbitrary geometries, especially those on plasmonics, photonics and microelectromechanical systems. The influence of degree of polymerization on the micro 3D printing will be studied for further 3D fabrication. Justification for Duty-Free Entry: There are no instruments of the same general category manufactured in the United States. Application accepted by Commissioner of Customs: June 16, 2015.

Docket Number: 15-028. Applicant: University of California, Irvine, 816 F Engineering Tower, Irvine, CA 92697-2575. Instrument: Electron Microscope. Manufacturer: JEOL Ltd., Japan. Intended Use: The instrument will be used to determine nanoparticle size, crystal structure, interface and defect structure, surface structure, composition, electronic state, band-gap, cell structure, magnetic domain structure, 3D-structure and phase transformation of materials such as metals, ceramics, semiconductors, superconductors, polymers, magnetic and electronic materials, nanomaterials, tissues and cells. Justification for Duty-Free Entry: There are no instruments of the same general category manufactured in the United States. Application accepted by Commissioner of Customs: June 12, 2015.

Docket Number: 15-030. Applicant: Washington State University, 220 French Administration Building, PO Box 641020, Pullman, WA 99164-1020. Instrument: MSM400 Yeast Tetrad Dissection Microscope. Manufacturer: Singer Instruments, United Kingdom. Intended Use: The instrument will be used to gain a basic molecular understanding of how cells repair DNA damage, how different chromosome features (i.e. DNA sequence, transcription, replication, protein association) impact the efficiency of repair and ultimately the production of mutation due to failure of repair, using the instrument to isolate haploid yeast with specific genetic backgrounds that can most easily be generated in heterozygous diploid yeast. In addition the

instrument will be used to determine on which chromosomes genetic alterations took place in diploid yeast treated with DNA damaging agents, as well as to document the growth and cell cycle stage of yeast. The instrument has a robotic stage that automatically places dissected spores on a grid to ensure correct cataloging of spores, and also allows control of the dissecting needle along 3 axes. No domestic manufactured instruments have these required capabilities. Justification for Duty-Free Entry: There are no instruments of the same general category manufactured in the United States. Application accepted by Commissioner of Customs: July 10, 2015.

Docket Number: 15-032. Applicant: The Trustees of Princeton University, 701 Carnegie Center, Princeton, NJ 08540. Instrument: Helios Dual Beam. Manufacturer: FEI Company, Czech Republic. Intended Use: The instrument will be used to perform imaging on cross sections of nanoscale, biological, photonic and multifunctional materials, made at precise geometric locations at a very small scale. Additionally, it is used to cross-section through the exact center of an impression, or along planes parallel to a set of microstructural features. Standard methods are incapable of preparing cross sections with the requisite spatial precision. With its unique triple detection system located inside the column and immersion mode, the system is designed for simultaneous detector acquisition for angular and energy selective SE and BSE imaging. Fast access to very precise, clear information is guaranteed, not only top-down, but also on tilted specimen or cross-sections. Additional below-the-lens detectors and a beam deceleration mode ensure that all signals are collected and no information is left behind. The instrument extends characterization with a versatile 110mm goniometer stage with tilt capability up to 90 degrees and optimal triple in-column detection. Unique features of the instrument include the shortest time to nanoscale information using best in class Ga ion gun and Elstar Schlottky FESEM high resolution, stability and automation, sample management tailored to individual application needs, with the high flexibility 110mm and high stability 150mm piezo stages, the focused ion beam can mill any material to a very fine scale, and can make features with a high degree of accuracy at the nanoscale, with critical dimensions of less than 50 nm, rapidly design, create and inspect micro and nano-scale functional prototype devices and create 3D Nanoprototyping with a DualBeam, sharp, refined and charge-free contrast obtained from up to 6 integrated in-column and below-the-lens detectors, can mill difficult charging samples with charge neutralizer. Justification for Duty-Free Entry: There are no instruments of the same general category manufactured in the United States. Application accepted by Commissioner of Customs: June 18, 2015.

Docket Number: 15-033. Applicant: Battelle Memorial Institute, 790 6th Street, Richland, WA 99354. Instrument: Electron Microscope. Manufacturer: FEI Company, the Netherlands.

Intended Use: The instrument will be used to understand the structure-property or structure-activity of materials such as catalysts, semiconductors, battery materials, and minerals at high spatial resolution under realistic conditions in order to design better materials. Justification for Duty-Free Entry: There are no instruments of the same general category manufactured in the United States. Application accepted by Commissioner of Customs: June 16, 2015.

Docket Number: 15-034. Applicant: Purdue University, 401 S. Grant St., West Lafayette, IN 47907. Instrument: Diode-Pumped Solid-State Laser. Manufacturer: Edgewave GmbH, Germany. Intended Use: The instrument will be used to enhance the fundamental understanding of propellant combustion so that safer and higher performance solid propellants can be designed and developed. The instrument is to be used for the measurement of flame radical species in propellant flames in real-time, using high-frame-rate (10-40kHz) imaging of the flame radical OH, produced in the reaction zone. The OH distribution is used to determine the burning mode for the propellant, and the laser system will give the capability to obtain high-frame-rate images of other propellants. The primary technique is high-frame-rate planar laser-induced fluorescence (PLIF) imaging. The UV laser from a Credo dye laser, pumped by the Edgewave DPSS laser, is formed into a focused sheet using a combination of spherical and cylindrical lenses. The frequency of the UV beam is then tuned to a resonance transition for the OH radical and the OH radical is pumped from the ground state to an excited electronic state by absorbing a photon from the laser sheet. Once in the excited state, the OH radical can decay by emitting a photon (fluorescence). The fluorescence light is imaged using a high-frame-rate intensified CMOS camera to produce an image of the OH distribution in the laser sheet, providing both time-and space-resolved information on the laser process. No domestic instruments have the required power, rep rate, and pulse length on the order of 10 nanoseconds. Justification for Duty-Free Entry: There are no instruments of the same general category manufactured in the United States. Application accepted by Commissioner of Customs: June 23, 2015.

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Director of Subsidies Enforcement
Enforcement and Compliance

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